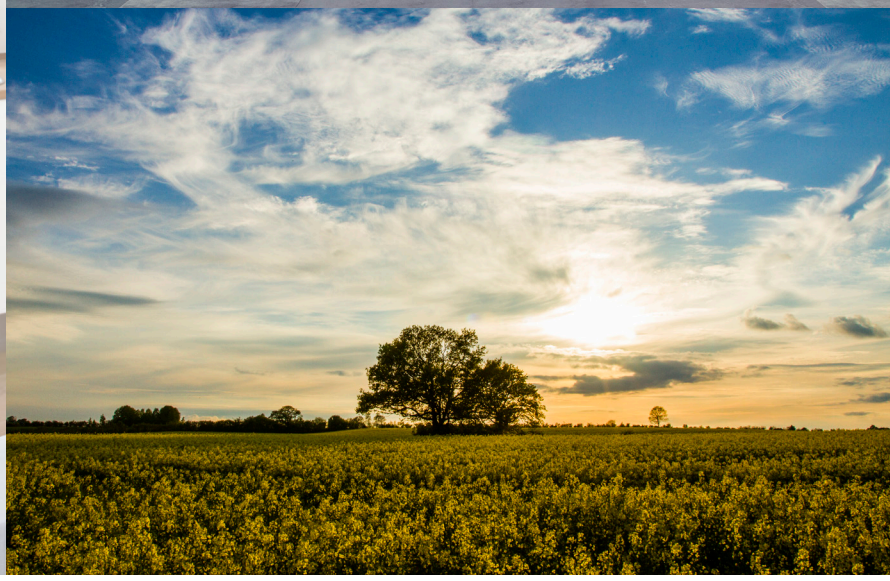
USER MANUAL

UK / Version 01.08.2014

OPTIMA 311

DISPLAY VER. 3.1 / PCB ES960C VER. 1.0B

COMBI 185 S/LS



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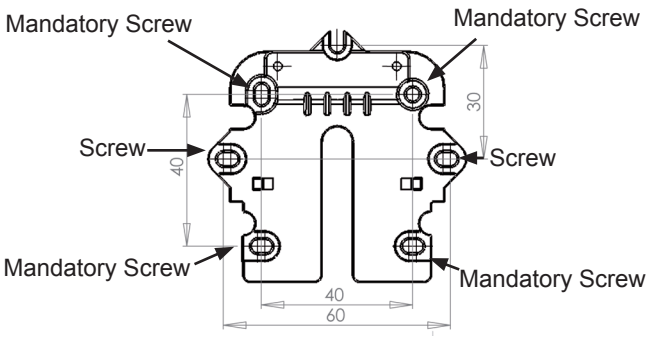
1. Mounting Design

1.1 Installation of the control panel

The control panel is designed to be mounted onto a flat wall.

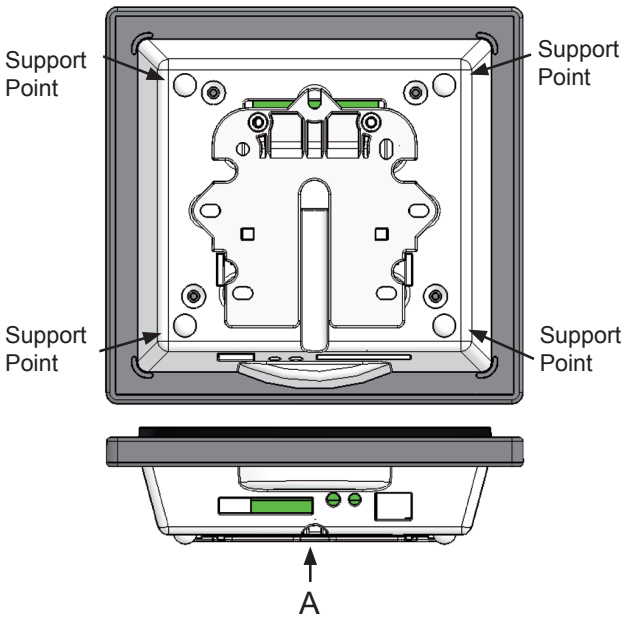
1.2 Mounting

Find the location on the wall where you will fix the control panel and mark the screw-hole positions. A min. of four screws must be used, the two bottommost and the two topmost.



Hold the wall frame against the wall and mark the screw-hole positions. Drilling of holes, hole size and the corresponding screws for fixing the panel depend on the wall material.

Place the control panel in the fixtures and tilt it in against the wall. The four support points in the corner of the display must touch the wall to keep the display stable.



Underneath the control panel there is an access for the:
A: Terminal block. Connection to main circuit board

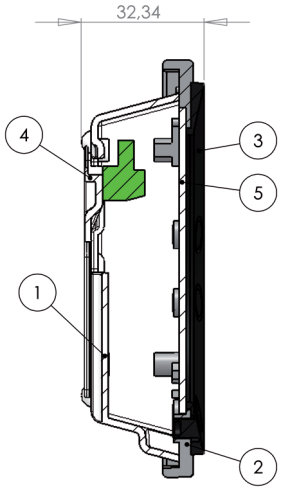
A low-current cable 8 x 0.25 mm2 must be attached between the unit and the control panel. 50 m is the maximum cable length. The voltage drop for cable lengths over 50 m is too high and can result in unreliable operation.

How to mount the wall fixture:

First screw the fixture securely onto the flat wall and pass the cable up from below.

Connect the low-current cable to the terminal block. Check that the cable is connected to the same numbers at both ends. (Between the control panel and the main circuit board in the unit.)

Next clip the control panel to the wall fixture by guiding it down from above, slightly slanting out at the bottom. Finish by pressing in at the bottom so that it sits flat against the wall. For demounting: pull the control panel a little out at the bottom and lift up.



Pos.	Description
1	Panel housing
2	Front of panel
3	Pressure plate for display
4	Wall fixture
5	Glass for the display

2. Control panel

The control panel must be mounted on an interior wall that is centrally located in the home.
Since the control panel at the same time functions as a room thermostat, it is important to observe the following:

- **Do not expose the control panel to direct sunlight**
- **Do not place the control panel on an outer wall**
- **Do not recess the control panel in the wall**
- **Do not place the control panel over a heat source**

A lamp close to the control panel can affect the light sensor so that the control panel will not regulate the light intensity as intended.

On the front of the control panel in the ring there are 7 keys that are used to operate the panel. The function of the keys changes depending on the menu selected. (More information is available under Operation).

There is an infrared movement sensor located under the glass screen. Simply by moving your hand past the control panel you can bring up the menu for daily operating options. (This function can be turned off:
See under Main menu/Display/Menu item 5).

The following are located at the bottom of the control panel:

1: SD card
2: Room sensor
3: Light sensor
4: Mini USB port for connection to computer

1: The removable SD card contains all the control models and versions that make the control panel compatible with older versions. The SD card also contains all the languages, menus, help texts, symbols and collected data logs. During the start-up procedure, the current versions are installed in the control panel so that the control can function without the SD card. However, the help texts will not appear in the display and the data logs will not be saved.

4: In order for a computer to read the data logs, the Genvex data logger program must be installed.

3. Installation

Please see the installation guide.

4. Start-up

The first time the system is started, the control panel display will show: “Choose language”.

Click “Next” to switch between Danish, English, German and French. Press “Enter” when the desired language is shown in the display. The control panel will now load the current program version in the selected language.

The display will show:

- Updating model (loading the current model)
- Wait 1.5 minutes (It takes approximately 1.5 minutes to load the current version)
- Language load (91)
- Language OK
- Menu load (84)
- Menu OK
- Icon load (369)
- Menu OK
- Reset to default
- Restarting……..
- Optima 311 UK

The display will then change to:

- The Genvex logo
- Optima 311 UK
- Version number

D (Control panel): X.X
C (Main board): X.X

Finally, the display changes to daily operation and the system is now in operation with the factory setting which is only a basic setting.

The system is now ready to be adjusted with the most optimal air flows and the operational desires and demands for the dwelling in question, e.g. weekly operation, temperatures etc. to achieve the most effective utilisation and operation of the system.

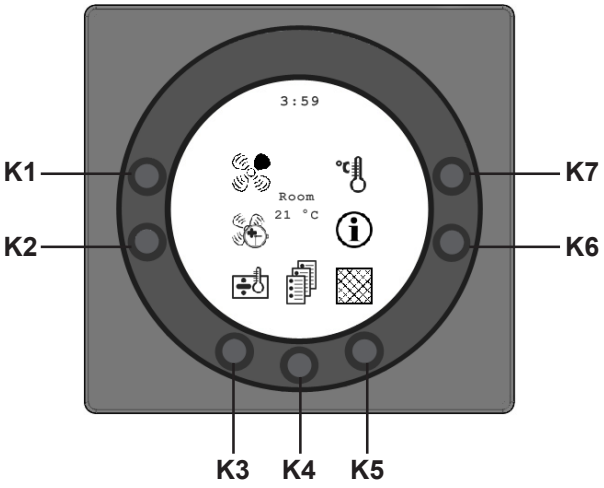
5. Operating

Optima 311

All Genvex combined ventilation units and domestic hot water heat pumps of type Combi for dwellings are delivered with the Optima 311 control, which has a factory setting so that the system can be put into operation without further setting. The factory setting is a basic setting that should be adapted to the operating desires and demands for the home in question to achieve the most effective utilisation and operation of the system.

5.1 Operating and changing data in the operating menu

Normally the symbols for daily operating options are displayed and the following keys can be seen.



K1 - Speed
Use this function to set the fan speed to levels 0-1-2-3-4. Use the key next to the “Speed” symbol to change between the 4 speeds. The system can also be stopped by holding down the key for 3-4 seconds on condition that item 28 of the Service menu is set to ON.

K2 - Forced operation (Party mode)
Use this function/key to set the timer to party mode from 0 to 9 hours. If the number of hours is set to 0, speeds 3 and 4 will run until the speed is changed manually. If the the number of hours is set between 1 and 9 hours, speeds 3 and 4 will automatically reconnect to speed 2 after the number of hours configured.

K3 - Immersion heater
Use the key next to the symbol “Immersion heater” to change between + and ÷. If the symbol is set to “+”, the immersion heater will automatically engage as required. If the symbol is set to “÷”, the immersion heater will not engage, even if required. It is an assumption that item 3 in the User menu is set to ON.

K4 - Main menu
Use this function to enter the main menu and access the sub-items Date and time, Calendar, User menu, Display, Info operation and Service menu.

K5 - Filter
Use this function to reset the filter alarm. The key next to the “Filter” symbol resets the alarm for filter change. To reset the filter alarm, change the filters and hold down the key with the “Filter” symbol until the exclamation mark in the symbol disappears.

K6 - Information
Use this function to get an overview of the current operating condition, e.g. temperatures, fan settings, relay status/ function ON/OFF, alarms, timers etc.
Use the key next to the symbol “Info” to read the operating condition of the unit. More information can be found in the main menu section under the item Info operation.

K7 - Temperature
Use this function to set the room temperature. Press the key next to the “Temperature” symbol to enter the desired temperature between 10 and 30 °C.
The current temperature will be displayed at the centre of the screen.

Press the key **K4** to enter the main menu and sub-menus and the following keys change function:

K3 changes to “Arrow down ” and when changing the setting to “÷”.
K4 changes to “Enter”. Press “Enter” to proceed through the menus and sub-menus.
K5 changes to “Arrow up” and when changing the setting to “+”.
K6 changes to “Exit”. Press “Exit” to return to the previous screen.
K7 changes to “Help”. Press “Help” to see a short guide to the current menu item.

The horizontal arrow in the menu shows the current location. To save changes to a menu item, finish by pressing “Enter”.

5.2 Main menu

There is a “Book” symbol at the bottom centre of the screen with the daily operating options. Press this key to enter the main menu.

Date and time	(item 4.3)
Calendar	(item 4.4)
User menu	(item 4.5)
Display	(item 4.6)
Info operation	(item 4.7)
Service menu	(item 4.8)

“Arrow down” or “Arrow up” will change the symbol to a horizontal arrow that shows the current location.

Press “Enter” to access the sub-items of the current menu. Press “Arrow down” or “Arrow up” again to select the required sub-menu item. When the horizontal arrow is next to a sub-menu item, the 2 lines will change place, the font sizes will change and the text “Set” will be added. Pressing ”Enter” next to the selected sub-menu item will change the background of the item to grey. Use the ”+” and ”÷” keys to change the current value. Press “Enter” again to save the change.

If no changes are required, press “Exit” to go back out of the menus. Press “Help” to see a short guide to the menu item. Press one of the keys to exit the help program. After a short period of non-activity, the control will automatically exit the programs.

5.3 Date and time

Use this function to set the date and time.

01 Hours
Enter the current hour here.
When changing between summer and winter time you have to set the time one hour forward or back manually.

02 Minutes
Enter the current minute here.

03 Weekday
Enter the current weekday here.

04 Date
Enter the current date here.

05 Month
Enter the current month here.

06 Year
Enter the current year here.

Weekday

Monday	1
Tuesday	2
Wednesday	3
Thursday	4
Friday	5
Saturday	6
Sunday	7

Month

January	1
February	2
March	3
April	4
May	5
June	6
July	7
August	8
September	9
October	10
November	11
December	12

5.4 Calendar

Use this function to configure the setting of each day of the week. Each day can be configured to run with different fan speeds as required. You can copy the configuration from one day to another. You can choose ON or OFF here, i.e. if for a period of time there is nobody home, the daily settings can be turned off and the system will run according to a manual setting, e.g. level 1.

01 - Calendar
Choose between controlling the system manually or controlling the speed (air exchange) and temperature automatically according to a fixed day program. If the menu item is set to OFF, the system will be controlled manually according to the speed and temperature selected.
If the menu item is set to ON, the system will be controlled according to the day programs entered in the menu items 02 to 08.
Setting option: ON/OFF.
Factory setting: OFF.

02 - Monday
Up to 10 switching times can be entered for one day. The times can be entered in random order. Enter the hours in the first column, the minutes in the second and the speed in the third column. Use the fourth column to enter the temperature difference by which the temperature should be lowered.
Example: If the temperature is set to 21 °C and you enter – 2.0 °C, the system will aim at 19 °C.
If the speed has been changed manually on the key under daily operation, the program will return to the day program when the next switching time is passed.

Examples of a day program:

01 07:30 H3 -0,0
02 09:15 H1 -1,0
03 17:00 H3 -0,0
04 18:00 H2 -0,0
05 23:30 H2 -2,0

It is not necessary to use all switching times. If the line is marked by 0, it will be skipped by the control.

03 to 08
These days can be filled in individually in the same way as under item 02.

09 Copy day
Use this menu item to copy one day to another, where the same switching times, speeds and temperature lowering are required.
For example: From Thursday to Tuesday.

5.5 User menu

01 - Temperature
Here the room temperature can be set. The temperature sensor is mounted in the control panel.
Setting option: between 10 and 30 °C.
Factory setting: 21 °C.

02 - Domestic water
Here it is possible to set the desired domestic hot water temperature.
Setting option: between 10 and 55 °C.
Factory setting: 52 °C.

03 - Immersion heater
By configuring the set point to ON, the immersion heater will automatically engage when there is a need. If the set point is configured to OFF, the immersion heater will not engage, even if there is a need.
When the fresh air temperature is below 0 °C, it is recommended to connect the immersion heater as a supplement to the heating of the domestic hot water and thereby reduce the heating time.
Setting option: ON/OFF.
Factory setting: OFF.

04 - Timer levels 3 and 4
At speeds 3 and 4, the system will automatically reconnect to speed 2 after the number of hours set in item 17 of the Service menu by configuring the set point to ON. If the set point is set to OFF, the system will run at speed 3 or 4 until it is manually changed to another speed. The timer can also be operated directly on the key next to the symbol for “Party mode” on the screen for daily operating options.
Setting option: ON/OFF.
Factory setting: OFF.

05 - Change filter
A filter timer is built-in counting how long the system has been running since the last change of filter. The set point can be set between 1-6, which corresponds to 1-6 months. It is recommended that the set point should initially be set to 3, corresponding to 3 months.
If the filters are too dirty after the period configured, set the set point to a lower number. If it is not necessary to change the filters after the configured period, the set point can be set to a larger number.
When the timer reaches the configured value for the change of filter, the alarm “Change filter” will flash at the top of the screen saver.

When the filters have been changed, return to the screen with daily operating options and hold down the key for the “Filter” symbol until the exclamation mark disappears and the system returns to normal operation.
Setting option: between 1 and 6 months.
Factory setting: 3 months.

5.6 Display menu

The menu item with the “Display” symbol.
Use this function to configure the following sub-menu items:

01 - Language
Choose between several different languages in the display.

02 - Program info
This menu shows which Optima is fitted on the system and its version number:
Example: Optima 311 UK D: 3.1 C: 1.0
D represents the version number of the control panel.
C represents the version number of the main board.

03 - Screen saver.
The following settings can be selected here:
0: Screen saver off (daily operating options are displayed)
1: Screen saver off, but with light dimming
2: Room temperature + light dimming
3: Clock + light dimming
4: Clock and room temperature + light dimming
5: Black screen + light dimming
Setting option: between 0 and 5.
Factory setting: 3.

04 - Pause time
Use this to set the period from no operation of the symbols on the screen for daily operation until the screen automatically returns to the screen saver. From daily menu to screen saver variable from 1 to 10 minutes. The other automatic return connections cannot be adjusted. If no key has been pressed within the time intervals indicated below, it will automatically return to the previous screen:
-Change in menu item back to menu item = 30 seconds
-From menu item to main menu = 2 minutes
-From menu item to daily menu = 2 minutes
Setting option: between 1 and 10 minutes.
Factory setting: 10 minutes.

05 - Auto wake-up
It is possible to deactivate the “Auto wake-up” function, where you can change from the screen saver to the screen with the symbols for the daily operating options by moving your hand past the control panel.
If the function is set to OFF, press any key to display the daily operating options.
Setting option: between 0 and 4.
Factory setting: 1.

”0”	OFF
”1”	Max sensitive
”2”	Level 2
”3”	Level 3
”4”	Least sensitive

06 - Auto lightness
In the display there is a movement sensor.
Setting option: ON/OFF.
Factory setting: ON.

07 - Lightness day
Use this to enter the maximum brightness level for the control panel when the room is fully lit.
Setting option: between 0 and 100 %.
Factory setting: 100 %.

08 - Lightness night
Use this to enter the minimum brightness level for the control panel when the room is in complete darkness.
Setting option: between 0 and 100 %.
Factory setting: 30 %.

09 - Lightness day screen saver
Use this to enter the maximum brightness level for the screen saver when the room is fully lit.
Setting option: between 0 and 100 %.
Factory setting: 50 %.

10 - Lightness night screen saver
Use this to enter the minimum brightness level for the screensaver when the room is in complete darkness.
Setting option: between 0 and 100 %.
Factory setting: 0 %.

11 - Reset to factory settings
If the set points are configured so that the system does not function as expected and the cause cannot be established, there are 2 different options to reset the menu items to the factory settings.

- Press 1 to change all menu items to the factory settings except for the menu items for Speed (Level), Filter timer, Calendar and Defrost temperatures.

- Press 2 to change all menu items to the factory settings.
Note: Before performing a reset, ensure that the currently entered values are noted in the “Schedule for set points”.
Setting option: between 0 and 2.
Factory setting: 0 mode.

12 - Safety menu
It is possible to prevent access to selected main menu items so that they can only be changed with a password, which is a 4-digit figure. The first time, press 4 times 0 and then “Enter”. Items 13 to 18 will open. Select the password in item 18, which will also be the password to access the menu items 13 to 18 in future.

13 - Date and time
If this item is set to ON, it will not be possible to enter the menu for Date and time without using the selected password in item 18.
Setting option: ON/OFF.
Factory setting: OFF.

14 - Calendar
If this item is set to ON, it will not be possible to enter the menu for Calendar without using the selected password in item 18.
Setting option: ON/OFF.
Factory setting: OFF.

15 - User menu
If this item is set to ON, it will not be possible to enter the User menu without using the selected password in item 18.
Setting option: ON/OFF.
Factory setting: OFF.

16 - Display
If this item is set to ON, it will not be possible to enter the menu for Display without using the selected password in item 18.
Setting option: ON/OFF.
Factory setting: OFF.

17 - Service menu
If this item is set to ON, it will not be possible to enter the Service menu without using the selected password in item 18.
Setting option: ON/OFF.
Factory setting: OFF.

18 - Password
Enter the selected password here and use this also in item 12 to enter items 13 to 18. If you forget your password, contact Genvex Service department for assistance. To change the password, enter a new password in this item and press “Enter”. The password has now been changed.

5.7 Info menu

The Info menu provides an overview of the current operating status of the system. If you want to see the operating status of the system over a period of operation, connect the control panel to a computer and use the Optima data logger program. The system monitors the operating status every minute and stores the data for up to one year on the SD card.

Current temperature
Press “Enter” next to the Info menu. The first screen displayed shows the current temperatures.

T1	Supply air
T2	Room
T3	Fresh air
T4	Exhaust air
T5	Before evaporator
T6	Evaporator
T7	Boiler, bottom
T8	Boiler, top
T9	Extra sensor

Current fan speed
Press “Arrow down” to display the current fan speeds and the opening of the bypass damper and of the water valve.

Supply air	in %
Extract air	in%
Bypass damper	in %
Water valve	in %

Current setting of operation relays
Press “Arrow down” again to display the current status of the operation relays.

R1	Compressor
R2	Immersion heater
R3	Electrical after heating
R4	Defrosting
R5	Domestic water
R6	Room
R7	Extra cooling
R8	Auxiliary relay 8
R9	Auxiliary relay 9

Current list of alarms
Press “Arrow down” again to display the current alarms. An alarm it is activated if ON appears beside it. At ON there is an alarm, which can also be seen on the screen saver and the display for daily operating options. At the top it says “Alarm”. The information menu shows the type of alarm. When the timer for changing filter reaches the set value, the alarm “Change filter” will flash at the top of the screen saver.
The alarm will read OFF when the error has been corrected or the filter is changed and reset.

Alarm	Status	Error at „ON“
Control stopped	ON/OFF	Filter not changed after 14 days/ Frost protection error/The system is equipped with an external switch between terminals 28 and 29. “Alarm” will be displayed when these are short-circuited and the system has stopped.
Change filter	ON/OFF	The filters should be changed.
Frost protection	ON/OFF	The temperature of the water after heater is too low (frost danger).
Com error	ON/OFF	The control panel cannot communicate with the main board (between display and printed circuit board).
Pressure switch	ON/OFF	The high pressure switch is disconnected due to excessive pressure in the refrigerant circuit.

Hour counters (2 pages)
Press “Arrow down” again to display the hour counters, which count from the day the system is put into operation. The figures shown should be multiplied by 10. This shows how many hours the system has been running, how many hours the system has run at the various speeds and how many hours the relays have been connected (ON).

Total time	
Level 0	
Level 1	
Level 2	
Level 3	
Level 4	
Relay 1 Compressor	
Relay 2 Immersion heater	
Relay 3 Electrical after heating	
Relay 8 Help funktion	
Relay 9 Help function	

Press Exit to return to the main menu.

5.8 Service menu

Use this function to configure the following sub-menu items.

10 - Level 1 Supply air
Level 1, which is the lowest speed, is usually used when there is nobody home. Both fans can be configured independently of each other for all levels so that the air flow in the supply air and in the extract air is equal, which provides optimal operation.
The adjustment of the system must be performed with specialised air measurement equipment and can be performed without the use of the main regulating damper.
It is not recommended to configure the air flows without expert advice. Incorrect configuration can lead to major energy consumption or unpleasant indoor climate.
Setting option: between 0 and 100 %.
Factory setting: 30 %.

11 - Level 2 Supply air
Level 2 is the recommended speed of the system in order to provide the optimal indoor climate and it should be adjusted to the ventilation requirement of the home.
Setting option: between 0 and 100 %.
Factory setting: 50 %.

12 - Levels 3 and 4 Supply air
Level 3 is the highest speed that can be configured. It is used e.g. if there are many guests or there is a lot of activity in the kitchen.
Setting option of level 3: between 0 and 100 %.
Factory setting of level 3: 75 %.
Level 4 is used mainly in summer to lower the indoor temperature. Remember that a higher air exchange rate increases the energy consumption.
Setting option of level 4: cannot be configured.
Factory setting: 100 %.

13 - Level 1 Extract air
The fan speed is adjusted until the same air flow is achieved as the supply air on level 1.
Setting option: between 0 and 100 %.
Factory setting: 30 %.

14 - Level 2 Extract air
The fan speed is adjusted until the same air flow is achieved as the supply air on level 2.
Setting option: between 0 and 100 %.
Factory setting: 50 %.

15 - Levels 3 and 4 Extract air
The air flow of level 3 is adjusted to the same air flow as the supply air on levels 3 and 4 (item 12).
Setting option of level 3: between 0 and 100 %.
Factory setting of level 3: 75 %.
Setting option of level 4: cannot be configured.
Factory setting: 100 %.

16 - (T2) Fine tuning
It is possible to fine tune the room sensor of the control panel so the correct current room temperature is displayed.
Setting option: between -5 and 0 °C.
Factory setting: -3 °C.

17 - Timer levels 3 and 4
If automatic reconnection is used for speeds 3 or 4, you can enter how many hours the system should run on level 3 or 4 before it automatically returns to level 2. The set point can be configured between 1 and 9 hours.
Setting option: between 1 and 9 hours.
Factory setting: 3 hours.

18 - Filter/stop
To ensure that the filters are changed when the alarm "Change Filter" flashes on the screen of the control panel, the set point can be configured to ON. The system will then stop automatically after 14 days if the filters have not been changed.
If this precaution is not required, the set point can be configured to OFF and the system will continue to operate.
Setting option: ON/OFF.
Factory setting: OFF.

19 - Immersion heater
If item 3 in the Service menu is set to ON and the key on the control panel for the immersion heater is activated, the immersion heater will heat up the domestic water in the upper part of boiler to the set temperature.
Setting option: between 0 and 65 °C.
Factory setting: 50 °C.

20 - Disinfection
If the item is configured to ON, once a week regardless of the temperature setting the domestic water will be heated up to 65 °C by the immersion heater to disinfect the boiler.
Setting option: ON/OFF.
Factory setting: OFF.

21 - Heating air
The default setting of the control is OFF to prioritise domestic water heating before room heating. To change the priority, the set point must be configured to ON.
Setting option: ON/OFF.
Factory setting: OFF.

22 - Regulation water
If a water after heater with a motor-operated valve is installed in the system it may be necessary to adjust the regulation time.
The less regulation time, the faster the motor-operated valve will regulate.
Setting option: between 1 and 250 seconds.
Factory setting: 20 seconds.

23 - Regulation electricity
If an electrical preheater or an electrical after heater is installed, it may be necessary to adjust the regulation time.
Setting option: between 1 and 30 minutes.
Factory setting: 3 minutes.

24 - Min. Air - exhaust
The minimum air flow for exhaust is set here.
The heat pump will not start with exhaust air flow below this setting.
Setting option: Between 0 and 100 %.
Factory default: 30%.

25 - Electrical heating coil
Here you enter whether the installation is fitted with an electric heating coil:
0 = No electrical heating coil installed
1 = Electrical reheater installed
2 = Electrical preheater installed
Setting option: 0-2.
Factory setting: 0.

26 - Solar collector (ΔT) hysteresis
If a solar collector is connected to the coil of the boiler, enter the temperature difference between the temperature in the solar collector (T9) and the domestic water temperature (T8) to be reached before the solar pump should start.
The solar pump will not stop until T9 is equal to T8.
Under any circumstances the solar pump will stop when T8 has reached a temperature of 60 °C.
Setting option: between 0 and 5 °C.
Factory setting: 5 °C.

27 Help function
This function can be used for the following:

Setpkt.	Function
0	The relay is off.
1	The relay is on when the system is running. This can e.g. be used to open and close the fresh air damper and the exhaust air damper.
2	The relay is on when extra heat is required or when the circulating pump should run when heating with water after heating is required.
3	The relay is on when the alarm "Change filter" is active. This can be used to activate an external alarm.
4	The relay is on when extra cooling is required. This function is used if a preheater is also fitted to the system.
5	The control can handle an earth heat exchanger by a damper. The relay will be on for one of the following two conditions: • The outdoor temperature, sensor T9, is lower than the value configured in item 37 (frost protection temperature, typically set at 5 °C). • The outdoor temperature, sensor T9, is more than 1° above the temperature configured in item 1 and 1 ° above the current room temperature.

Setting option: between 0 and 5.
Factory setting: 0.

28 - System stop
Here you choose if it should be possible to stop the system by pressing the key for speed (K1) in the operating menu for 3-4 seconds. If the set point is OFF, the system cannot be turned off.
Setting option: ON/OFF.
Factory setting: OFF.

29 - Stop defrosting
As default the defrosting period ends when the evaporator has reached a temperature of 5 °C. It may be necessary to change this temperature to a higher value under special operating conditions where the evaporator is not completely defrosted.
Setting option: between 0 and 15 °C.
Factory setting: 5 °C.
Please note: It is not recommended to configure the item without expert advice.

30 - Compressor start/stop
The default temperature difference between start/stop compressor is ± 0.4 °C. It is recommended to change the temperature difference under special operating conditions.
Setting option: between 0.1 and 1.0 °C.
Factory setting: 0.4 °C.
Please note: It is not recommended to configure the item without expert advice.

31 - Constant ON
If the other heating system of the home is not connected to the heat pump system, the other heating system, e.g. furnace, can stop the heat pump so that the heat pump system with heat exchanger only blows preheated air into all rooms. This will cause increasing problems with draught as the temperature falls outside. Systems without heat exchangers will blow fresh air directly in. Configuring the set point to ON will disconnect the room sensor.
The heat pump will always operate and blow in warm air when the fresh air temperature is below the temperature configured in item 32.
If the set point is configured to OFF, the room sensor will regulate the heat pump regardless of the fresh air temperature.
Setting option: ON/OFF.
Factory setting: OFF.

32 - Constant
If ON is selected in item 31, the desired fresh air temperature can be set.
Setting option: between 0 and 10 °C.
Factory setting: 5 °C.

33 - Reduction
For very low fresh air temperatures, lowering the supply air flow is recommended in order to improve the operating conditions of the heat pump and to also achieve a higher supply air temperature, even though the same air flow will be extracted.
If the set point is configured to ON, the supply air flow will be lowered when the fresh air temperature falls below the temperature configured. If the set point is configured to OFF, there will be no reduction of the supply air flow. This configuration applies when a preheater is installed in the fresh air side. If a furnace is installed in the home, this setting should be used with care.
Setting option: ON/OFF.
Factory setting: OFF.

34 - Reduced supply air flow
When the set point is configured to ON in item 33, it is recommended that the fresh air temperature is set to -10 °C. The set point can be configured between -15 and 0 °C.
Setting option: between -15 and 0 °C.
Factory setting: -10 °C.

35 - Supply air flow
When the set point is configured to ON in item 33, it is recommended to configure the reduced supply air flow to 20 % under the value configured in item 11.
Setting option: between 0 and 100 %.
Factory setting: 20 %.

36 - Auxiliary relay 8
Relay 8 can be used for the following help functions:

Set points	Function
0	The solar pump (item 26) can be connected. The pump will stop, when the T8 has reached a temperature of 60 °C.
1	The circulating pump for the water after heater can be connected. The pump will only run when heat is required.
2	The relay is on, when the system is running.
3	The solar pump (item 26) can be connected. The pump will stop, when the T8 has reached a temperature of 52 °C.

Setting option: between 0 and 3.
Factory setting: 0.

37 - Earth heat exchanger
If an earth heat exchanger is fitted to the system and set point 5 in menu item 27 has been selected, it is possible to configure the lowest temperature at which the earth heat exchanger shall operate.
Setting option: between 0 and 10 °C.
Factory setting: 0 °C.

38 - Changing temperature scale
The temperature scales can be changed on the sensors T7, T8 and T9 from -30 °C / 70 °C to -10 °C / 90 °C by removing the 3 jumpers on the main board and configuring the item to ON. If the jumpers are mounted, the item should be configured to OFF.
Setting option: ON/OFF.
Factory setting: OFF.

39 - Min. Air – supply
The minimum air flow for supply air is set here. The heat pump will not start with supply air flow below this setting.
Setting option: Between 0 and 100 %.
Factory default: 30 %.

40 - Min. Air Mode
0 = Off: If the set value for either exhaust or supply air is below the set values in points 24 and 39 respectively, the heat pump will not start when there is a need for air or water heating.
1 = Winter: Should the actual operational settings for exhaust or supply air flow fall below the minimum settings in points 24 and 39 respectively, and there should arise a need for heat pump operation, the exhaust air flow and supply air volume will be increased to the set minimum air flow rates.
With heat pump STOP, air volumes return to the values they had before the heat pump was started.
2 = Summer: With heat pump operation in conjunction with air heating, the control responds as described in “1”.
With heat pump operation in connection with water heating, if the exhaust air flow is below the setting in point 24, it will be raised to the setting in point 24.
Supply air volume will not change, but remain at the current setting.
With heat pump STOP, the exhaust air flow will return to the setting it had before “Heat pump on”.
3 = Auto: When T3 (fresh air) > 15 °C, regulation will be as if the setting in this section was 2 “Summer”.
When T3 (fresh air) ≤ 15 °C, regulation will be as if the setting in this section was 1 “Winter”.
Setting option: 0-3
Factory default: 0

41 - Modbus Mode
See separate description for MODBUS
Setting option: 0-2.
Factory default: 0.

42 - Modbus adresse
See separate description for MODBUS
Setting option: 1-247.
Factory default: 1.

43 - Electrical preheater
If an electrical preheater has been installed and Service menu item 25 has been set on 2, you have to set here, below which fresh air temperature that the electrical preheater is to be switched on.
Setting option: between -15 and 0 °C.
Factory default: 0 °C.

5.9 Schedule for week program

Monday

	Hours	Minutes	Speed	Red. T2
1)				
2)				
3)				
4)				
5)				
6)				
7)				
8)				
9)				
10)				

Tuesday

	Hours	Minutes	Speed	Red. T2
1)				
2)				
3)				
4)				
5)				
6)				
7)				
8)				
9)				
10)				

Wednesday

	Hours	Minutes	Speed	Red. T2
1)				
2)				
3)				
4)				
5)				
6)				
7)				
8)				
9)				
10)				

Thursday

	Hours	Minutes	Speed	Red. T2
1)				
2)				
3)				
4)				
5)				
6)				
7)				
8)				
9)				
10)				

Friday

	Hours	Minutes	Speed	Red. T2
1)				
2)				
3)				
4)				
5)				
6)				
7)				
8)				
9)				
10)				

Saturday

	Hours	Minutes	Speed	Red. T2
1)				
2)				
3)				
4)				
5)				
6)				
7)				
8)				
9)				
10)				

5.10 Schedule for defrosting

Before evaporator °C	Evaporator °C
15	-2
14	-2
13	-2
12	-2
11	-2
10	-2
9	-2
8	-2
7	-2
6	-2
5	-2
4	-2
3	-3
2	-4
1	-4
0	-5
-1	-6
-2	-6
-3	-7
-4	-7

Sunday

	Hours	Minutes	Speed	Red. T2
1)				
2)				
3)				
4)				
5)				
6)				
7)				
8)				
9)				
10)				

Red. T2 = Reduced room temperature (Night set-back)

5.11 Schedule for set points

Item	Headline	Factory setting	Configuration area	Date	Date	Date	Date
(5.5) 1	Temperature	21 °C	10 - 30 °C				
2	Domestic water	52 °C	0 - 55 °C				
3	Immersion heater ON/OFF	OFF	ON / OFF				
4	Timer levels 3 and 4	OFF	ON / OFF				
5	Change filter	3 mdr.	1 - 6 mdr.				
(5.8) 10	Level 1 Supply air	30 %	0 - 100 %				
11	Level 2 Supply air	50 %	0 - 100 %				
12	Level 3 and 4 Supply air	75 / 100 %	0 - 100 %				
13	Level 1 Extract air	30 %	0 - 100 %				
14	Level 2 Extract air	50 %	0 - 100 %				
15	Level 3 and 4 Extract air	75 / 100 %	0 - 100 %				
16	(T2) Fine tuning	÷3 °C	÷ 5 - 0 °C				
17	Timer level 3 and 4	3 timer	1 - 9 timer				
18	Filter/stop	OFF	ON / OFF				
19	Immersion heater	50 °C	0 - 65 °C				
20	Disinfection	OFF	ON / OFF				
21	Heating air	OFF	ON / OFF				
22	Regulation water	20 sek.	1 - 250 sek.				
23	Regulation electricity	3 min.	1 - 30 min.				
24	Min. Air - exhaust	30 %	0 - 100 %				
25	After heating	0	0-2				
26	Solar collector hysteresis	5 °C	0 - 5 °C				
27	Help function	0	0 - 5				
28	System stop	OFF	ON / OFF				
29	Stop defrosting	5 °C	0 - 15 °C				
30	Compressor start/stop	0,4 °C	0,1 - 1,0 °C				
31	Constant ON	OFF	ON / OFF				
32	Constant	5 °C	0 - 10 °C				
33	Reduction	OFF	ON / OFF				
34	Reduced supply air flow	÷10 °C	÷15 - 0 °C				
35	Supply air flow	20 %	0 - 100 %				
36	Auxiliary relay	0	0 / 1 / 2 / 3				
37	Earth heat exchanger	0 °C	0 - 10 °C				
38	Changing temperature scale	OFF	ON / OFF				
39	Min. Air – supply	30 %	0 - 100 %				
40	Min. Air Mode	0	0/1/2/3				
41	Modbus Mode	0	0/1/2				
42	Modbus Address	1	1-247				
43	Electrical preheater	0 °C	-15 - 0 °C				

6. Function

6.1 Control

A Combi unit is used for heating of the domestic water and of the supply air to cover the ventilation requirement of the home and partial basic heating.

Domestic water heating
The temperature of the domestic water is controlled by sensor T8, which is fitted in the bottom of the boiler. When heating of the domestic water is required, the compressor starts and solenoid valves MA 3 and MA 6 open and the domestic water is heated to the configured domestic water temperature.

Room heating
Magnetic valves MA 2 and MA 5 are activated for room heating. The room temperature is controlled by the room sensor T2, which is fitted in the control panel. If this temperature has been configured to e.g. 21 °C, the compressor will start when the room temperature falls to 20.6 °C. The compressor will stop when it has increased the room temperature to 21.4 °C. If the compressor cannot maintain the room temperature, the motor-operated valve (systems with water after heaters) will begin to regulate (PI regulation) when the room temperature has fallen to 20 °C.

For systems with electrical after heaters, level 1 will engage when the room temperature has fallen to 20°C. When the room temperature again reaches 21 °C, the electrical heater will disengage.

No heat requirement
When neither domestic water heating nor room heating is required, the compressor stops, but the fans continue to run and the heat of the extract air is recovered in the counter current heat exchanger and transferred to the supply air.

Defrosting
The system begins defrosting when the difference between the temperature before the evaporator and the temperature of the evaporator becomes too big, which occurs when ice forms on the evaporator.
The solenoid valve MA 4 opens, the supply air fan and the electrical heaters stop until the ice is melted and the evaporator has reached a temperature of about 5 °C. Then the solenoid valve closes again and the supply air fan and the electrical heating coils start again.

6.2 Extra capacity

Immersion heater
If the heat requirement exceeds the capacity of the Combi unit, the immersion heater can be configured to ON by the shortcut key in the main menu. Through this configuration the sensor T7, which is mounted at the centre of the boiler, will heat the upper part of the DHW boiler to the temperature set.

6.3 Operating reliability

High pressure switch
In order to protect the compressor from exceeding its range of application, a high pressure switch is built in that will disconnect when the pressure becomes too high. Activate the red reset button on the pressure switch when the cause of the fault has been established.

Safety thermostat
If an error occurs in the immersion heater for heating of the domestic water, the safety thermostat will disconnect. To reconnect the safety thermostat, press the small button in the centre of the thermostat.
The thermostat is located at the centre of the boiler.

Remember to disconnect the power to the system before performing an operation. The operation may only be performed by authorised personnel.

Overriding the supply air fan
If the supply air temperature exceeds 45 °C, the speed of the supply air fan will begin to increase. The supply air temperature will be maintained at 45 °C, if possible.

7. Maintenance

Follow the following instructions to achieve optimal performance:

Before opening the unit,
turn off the power/pull out the plug and wait until the fans have stopped completely.

A couple of days after the primary installation check that the condensation outlet is working.

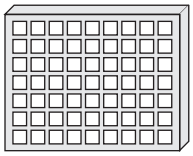
Environmental requirements
When repairing or dismantling the unit, statutory environmental regulations must be observed regarding recycling and destruction of various materials.

7.1 Unit

Filters

When the alarm “Change filter” flashes in the control panel display, the filters must be changed. Stop the system by the circuit breaker of the unit or by the circuit breaker on the terminal board. Open the front cover/filter drawers and remove the filters. After having changed the filters, reset the filter timer. The time interval for cleaning/changing the filters can be adjusted in the operating menu.

There is a danger of cuts from sharp discs.
The discs must not be damaged.
Vacuum cleaning or using pressurised air on the filters is not recommended.
Filter performance may be impaired.



G4 = Standard filter (basic filter class G4)
F5 = Fein filter (fine filter class F5)
F7 = Pollen filter (fine filter class F7)

Condensed water and condensation outlet

The condensation trays must be cleaned of dirt every autumn. Fill the condensation trays with water and check that the water drains away. If not, the outlets must be cleaned. Check that the evaporator discs are also clean.

Heat exchanger

Inspect the heat exchanger every 3 years. If it is dirty, remove it and wash it in warm water with soap and rinse with a hand shower.

Fans

Inspect the fans for dirt in the fan wheels every 3 years. Remove the front cover from the unit. Clean the fans with a brush, a bottle cleaner or a paint brush. Make sure that the counterbalancing weights on the fan wheels are not removed, as this will lead to disequilibrium and cause a higher level of noise and also wear to the fans.

Supply air and extract air valves

Clean the valves by drying with a dry cloth.
Make sure that the valves do not turn around, causing a change in the air flow.

7.2 Water circuit and boiler

Safety valve

The installer hat fitted a safety valve at the cold water tap. The function of this valve is to protect the boiler against overpressure when the domestic water expands under heating. The non-return valve that is fitted before the safety valve on the cold water pipe prevents the water from flowing back into the cold water pipe.

The pressure in the boiler therefore increases to the maximum of the safety valve, the safety valve opens and the excess water flows away. If the safety valve would not open, the boiler would burst. In order to ensure that the safety valve is functional, it should be inspected several times annually. To test it, press the handle on the safety valve and ensure that the water can drain away. Damages occurred due to a blocked safety valve are not covered by the guarantee.

Anode

The enamel boiler is equipped with a magnesium anode to prevent corrosion. The anode is fitted at the centre of the boiler. The estimated lifetime of the anode is about 2-5 years. It is recommended that the anode is inspected every two years. If it is worn and has a diameter of about 6-10 mm it must be replaced. To inspect the system, disconnect the power before removing the front cover. Empty the boiler of water before removing the anode. To do this, close the cold water supply and connect a hose to the drain valve so that the water from the boiler can drain out to the closest outlet. While the boiler is emptying of water, open a hot water tap so that negative pressure does not develop in the boiler. When the boiler is empty, the anode can be screwed off and inspected.

After reinstalling the anode, close the drain tap, open the cold water supply and the boiler will again be filled with water and emptied of air. When the boiler is filled with water, remount the front cover and reconnect the power.

7.3 Dismantling/taking the system out of service

The following must be performed:

The power supply, i.e. the electric cables, must be disconnected. Disconnect the condensation outlet and power cables for any after heater/preheater. Disconnect cables for the control panel and demount ducts.
If the system should to be taken out of service, the ducts must be demounted to avoid condensed water in the system and in the ducts.
Close all supply air and extract air valves.

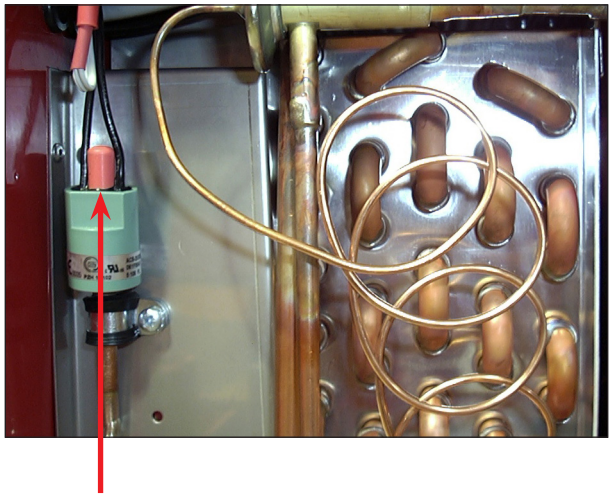
8. Troubleshooting

The heat pump is fitted with the following safety equipment:

8.1 High pressure switch

The high pressure switch protects the heat pump from excessive pressure in the refrigerant circuit. In the event of disturbances, the high pressure switch will stop the compressor. The system will restart when the high pressure switch is reset manually. Before unscrewing the front cover, turn off the power to the system.

Take off the front cover by removing the screws.



Press the **red** button for RESET.

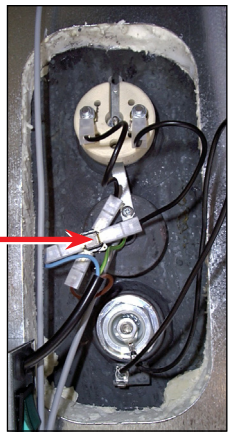
8.2 The safety thermostat of the immersion heater

In case the sensor T7 of the immersion heater is defective, the safety thermostat ensures that the temperature of the domestic hot water does not exceed 90 °C.

Before removing the front cover, disconnect the power supply to the system.

Unscrew the cover plate in front of the immersion heater and reset the safety thermostat as indicated on the photo.

Press the **white** button for RESET.



8.3 The system is not running

The system has stopped:

Check the following:

- Is the display illuminated?
- Is the system disconnected via the clock program?
- Is the high pressure switch disengaged?
- Is the cable attached between the control and the control panel?
- Has the filter not been changed (alarm “Change filter”)?
- Frost protection error.

Condensed water is leaking from the unit:

Error possibility:

- The condensation outlet is blocked by dirt.
- The condensation outlet is not adequately protected against freezing at low outdoor temperatures.
- The drain trap is not installed correctly.

8.4 Error on air side

No supply air to the living rooms:

Error possibility:

- The fresh air filter is blocked by dirt and leaves in autumn or by snow and ice in winter.
- The fresh air grille is blocked by dirt and leaves in autumn or by snow and ice in winter.
- The unit is defrosting (the supply air fan is disconnected during defrosting)

No extract air from the wet rooms:

Error possibility:

- The extract filter is blocked.

Cold air supply:

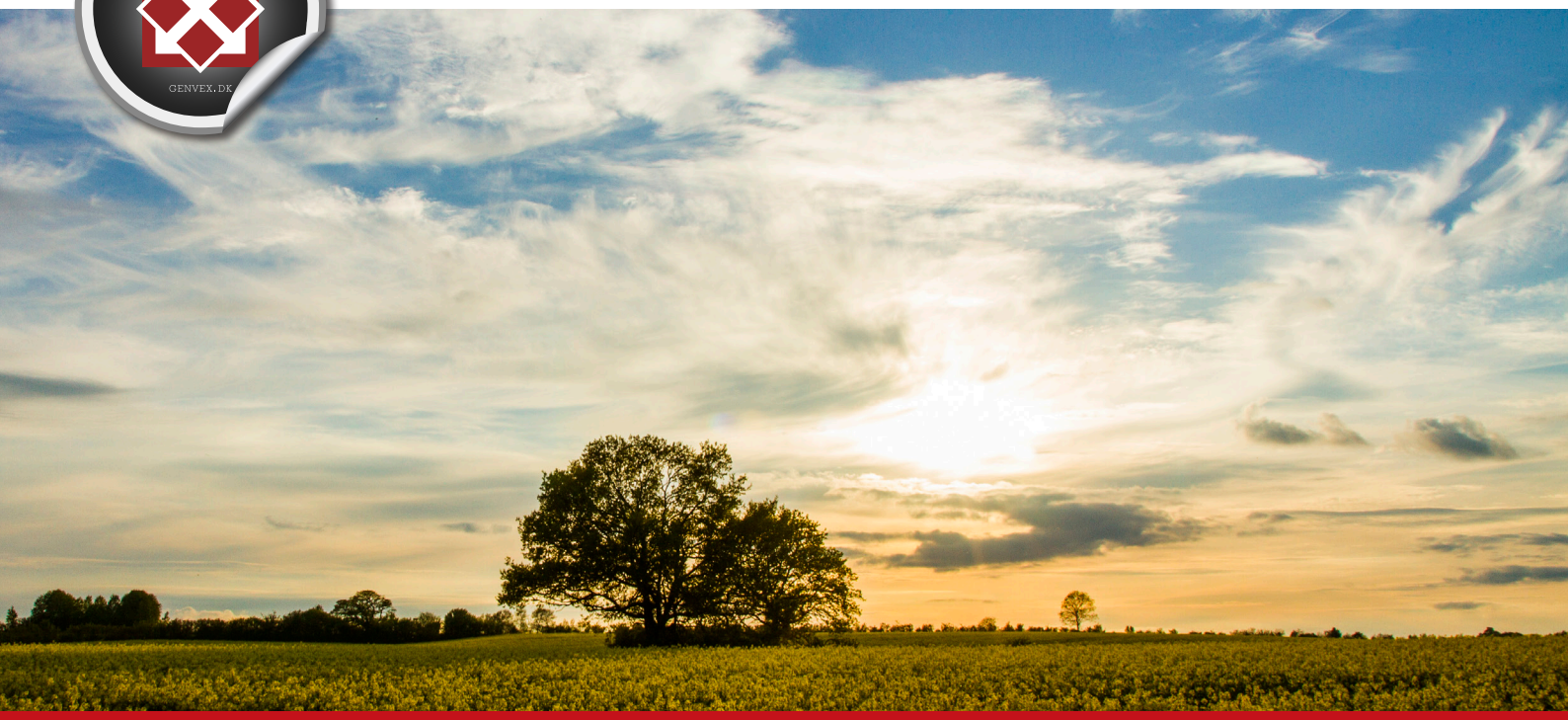
Error possibility:

- The heat exchanger is blocked by dirt or ice.
- The extract filter is blocked.

If the error of your unit is none of the above listed errors, please contact:

- *Within the guarantee period (0-2 years):*
  The installer from whom you have bought the system.

- *After the guarantee period (2 years ->):*
  The installer from whom you have bought the system or the Genvex service department (+45 7353 2765). Before calling, please write down the data from the inscription plate (silver plate on the unit).



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